

Department of Energy

Pt. 431, Subpt. T, App. D

APPENDIX C TO SUBPART T OF PART 431—CERTIFICATION REPORT FOR DISTRIBUTION TRANSFORMERS

All information reported in this Certification Report(s) is true, accurate, and complete. The company is aware of the penalties associated with violations of the Act, the regulations thereunder, and is also aware of the provisions contained in 18 U.S.C. 1001, which prohibits knowingly making false statements to the Federal Government.

Name of Company Official or Third-Party Representative: _____

Signature of Company Official or Third-Party Representative: _____

Title: _____

Date: _____

Equipment Type: _____

Manufacturer: _____

Private Labeler (if applicable): _____

Name of Person to Contact for Further Information: _____

Address: _____

Telephone Number: _____

Facsimile Number: _____

For Existing, New, or Modified Models:¹

Prepare tables that will list distribution transformer efficiencies. Each table should have a heading that provides the name of the manufacturer, as well as the type of transformer (*i.e.*, low-voltage dry-type, liquid-immersed, or medium-voltage dry-type) and the number of phases for the transformers reported in that table. Each table should also

have five columns, labeled “kVA rating,” “BIL rating” for medium-voltage units, “Least efficient basic model (model number(s)),” “Efficiency (%)” and “Test Method Used.” Each table should have one row for each of the kVA groups that are produced by the manufacturer and that are subject to minimum efficiency standards. In the “Test Method Used” column, the manufacturer should report whether the efficiency of the reported least efficient basic model in that kVA grouping was determined by testing or through the application of an alternative efficiency determination method.

Submit by Certified Mail to: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, Mailstop EE-2J, Forrestal Building, 1000 Independence Avenue, SW., Washington, DC 20585-0121.

Submit by E-mail to: *certification.report@ee.doe.gov*.

APPENDIX D TO SUBPART T OF PART 431—ENFORCEMENT FOR PERFORMANCE STANDARDS; COMPLIANCE DETERMINATION PROCEDURE FOR CERTAIN COMMERCIAL EQUIPMENT

The Department will determine compliance as follows:

(a) The first sample size (n_1) must be four or more units, except as provided by § 431.373(a)(3).

(b) Compute the mean of the measured energy performance (\bar{x}_1) for all tests as follows:

$$\bar{x}_1 = \frac{1}{n_1} \left(\sum_{i=1}^{n_1} x_i \right) \quad [1]$$

where x_i is the measured energy efficiency or consumption from test i , and n_1 is the total number of tests.

(c) Compute the standard deviation (s_1) of the measured energy performance from the n_1 tests as follows:

$$s_1 = \sqrt{\frac{\sum_{i=1}^{n_1} (x_i - \bar{x}_1)^2}{n_1 - 1}} \quad [2]$$

(d) Compute the standard error (s_{x_1}) of the measured energy performance from the n_1 tests as follows:

$$s_{x_1} = \frac{s_1}{\sqrt{n_1}} \quad [3]$$

(e)(1) For an energy efficiency standard, compute the lower control limit (LCL_1) according to:

$$LCL_1 = EPS - ts_{x_1} \quad [4a]$$

or

$$LCL_1 = 95.0EPS, \text{ (whichever is greater).} \quad [4b]$$

(2) For an energy use standard, compute the upper control limit (UCL_1) according to:

$$UCL_1 = EPS + ts_{x_1} \quad [5a]$$

or

$$UCL_1 = 1.05EPS, \text{ (whichever is less),} \quad [5b]$$

where EPS is the energy performance standard and t is a statistic based on a 97.5 percent, one-sided confidence limit and a sample size of n_1 .

(f)(1) Compare the sample mean to the control limit. The basic model is in compliance and testing is at an end if, for an energy efficiency standard, the sample mean is equal to or greater than the lower control limit or, for an energy consumption standard, the sample mean is equal to or less than the upper control limit. If, for an energy efficiency standard, the sample mean is less than the lower control limit or, for an energy consumption standard, the sample mean is greater than the upper control limit, compliance has not been demonstrated. Unless the manufacturer requests manufacturer-option testing and provides the additional units for such testing, the basic model is in noncompliance and the testing is at an end.

(2) If the manufacturer does request additional testing, and provides the necessary

additional units, the Department will test each unit the same number of times it tested previous units. The Department will then compute a combined sample mean, standard deviation, and standard error as described above. (The “combined sample” refers to the units the Department initially tested plus the additional units the Department has tested at the manufacturer’s request.) The Department will determine compliance or noncompliance from the mean and the new lower or upper control limit of the combined sample. If, for an energy efficiency standard, the combined sample mean is equal to or greater than the new lower control limit or, for an energy consumption standard, the sample mean is equal to or less than the upper control limit, the basic model is in compliance, and testing is at an end. If the combined sample mean does not satisfy one of these two conditions, the basic model is in noncompliance and the testing is at an end.